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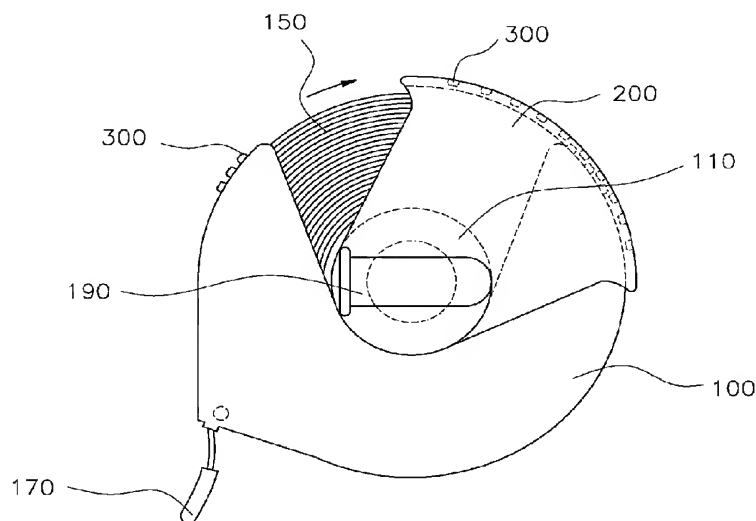
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GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: TAPE MEASURE HAVING CASE CAPABLE OF BEING OPENED AND CLOSED



(57) Abstract: Disclosed is a tape measure having a case capable of being opened and closed. The tape measure has a movable member capable of sliding against a fixed member, and protects a tape wound around a shaft inside of a case and can easily remove alien substance contaminating the inside of a case by a tape simultaneously. In the tape measure, the case has an accommodating space of a predetermined size, a tape is spirally wound to a shift in the case, and the tape is drawn out of the case or received into the case by a lever formed outside the case. Especially, the case comprises a fixed member one part of which is cut in the shape of an arc at a predetermined size; a movement member performing rotation to open and close the cutting part of the fixed member; and protrusions shaped as a plurality of saw teeth which are on an outer surface the fixed member and on an inner surface of the movement member.



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**Published:**

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## **Description**

### **TAPE MEASURE HAVING CASE CAPABLE OF BEING OPENED AND CLOSED**

#### **Technical Field**

- [1] The present invention relates to a tape measure having case capable of being opened and closed, and more particularly, to a tape measure having case capable of being opened and closed, which has a movable member capable of being slid with respect to a fixed member, protects a wound tape therein, and easily removes alien substances contaminating the inside of the case by the tape.

#### **Background Art**

- [2] In general, tape measures are widely used for measuring the lengths of articles at homes or at industrial sites, and manufactured to have a variety of lengths from a few meters to a few hundred meters according to measurement use.
- [3] Such tape measures are classified into two types, one is a closed-type tape measure in which a tape is wound in a case so as to measure a relatively shorter distance, another is an opened-type tape measure in which a tape whose length is relatively long is wound to a shaft shaped as a cross so as to measure a relatively long distance.
- [4] Fig. 1 is a perspective view showing a prior art closed-type tape measure. As shown in the drawing, the closed-type tape measure includes a case 10 composed of a left case and a right case, in which the left and right cases are identically generated and assembled to face to one another, a bobbin (not shown) rotatably installed in the case 10, a tape 20 wound in a type of coil by a spring (not shown) which is coupled to the bobbin, a hook 30 joined to an end of the tape 20, and a slot 40 formed under one side of the case 10 such that the tape are drawn and entered from/to the case.
- [5] Accordingly, the tape 20 is drawn out of the case when the hook 30 is pulled, and the drawn tape 20 is received into the case 10 by elasticity of the spring when the hook 30 is released from user's hand. Here, the hook 30 is always located outside the case, because it is hooked at the slot 40.

#### **Disclosure of Invention**

##### **Technical Problem**

- [6] However, because the tape measure drawn out of the case is elastically entered into the case by the spring, the inner of the case can be dirtied during the measurement or various kinds of alien substances stuck to the tape are directly entered into the case. Therefore, the case inside is spoiled by various alien substances during the measurement.
- [7] Accordingly, when the tape measure is repeatedly used for a relatively long time,

pollutants cause a malfunction such that it may not properly work. Therefore, the tape measure must be disassembled and cleaned; otherwise the tape measure must be done away with in case of difficulty of disassembly.

- [8] In addition, the prior art tape measure has disadvantages in that, even if the tape measure is washed, if moisture adhered to the tape is not completely removed from the inside the airtight case, it is easily damaged, etc.

### **Technical Solution**

- [9] Therefore, the present invention has been made in view of the above problems, and it is an object of the present invention to provide a tape measure having a case capable of being opened and closed, which is capable of removing easily alien substances from the tape or the inner of the case, in which the case includes a fixed member, and a movement member performing a rotation to open and close the cutting part of the fixed member, if necessary.

- [10] In accordance with an aspect of the present invention, the above object can be accomplished by the provision of a tape measure having a case capable of being opened and closed, in which the case has an accommodating space of a predetermined size, a tape is spirally wound to a shift in the case, and the tape is drawn out of the case or received into the case by an arc formed outside the case. Here, the case comprises: a fixed member one part of which is cut in the shape of an arc at a predetermined size; a movement member performing a rotation to open and close the cutting part of the fixed member; and protrusions shaped as a plurality of saw teeth which are on an outer surface the fixed member and on an inner surface of the movement member.

- [11] The present invention according to the object as above can anticipate effects that malfunction of the tape measure can be not only previously prevented, but the life span of the tape measure can be largely extended, because alien substance adhered to the tape measure are easily removed therefrom by cleaning and washing operations in a state where only the movement member is opened, without complete disassembly of the tape measure.

### **Advantageous Effects**

- [12] The tape measure according to the present invention can obtain effects that alien substances stacked the inside of the case or pollutants adhered to the tape, which are produced in case of repeatedly use the tape measure for a long time, are easily removed by rotation of the movement member capable of being opened and closed and by washing the inside of the case, and also moisture remaining on the tape measure after washing is effectively removed from the inner of the case.
- [13] The tape measure according to the present invention is manufactured such that a case can be opened and closed, alien substances or pollutants can be easily removed

from the tape or the inner of the case. Therefore, users can conveniently perform their measurement works using such a tape measure.

### **Brief Description of the Drawings**

- [14] The above objects, features and other advantages of the present invention will be more clearly understood from the following detailed description taken in conjunction with the accompanying drawings, in which:
- [15] Fig. 1 is a perspective view showing a prior art closed-type tape measure;
- [16] Fig. 2 is a perspective view showing a tape measure having a case capable of being opened and closed according to the present invention;
- [17] Fig. 3 is an exploded perspective view showing a tape measure having case a capable of being opened and closed according to the present invention; and
- [18] Fig. 4 is a view showing a tape measure having a case capable of being opened and closed in a state where it is opened, according to the present invention.

### **Best Mode for Carrying Out the Invention**

- [19] Referring to the attached drawings, the preferred embodiment of the present invention is described in detail below.
- [20] Fig. 2 is a perspective view showing a tape measure having case capable of being opened and closed according to the present invention, and Fig. 3 is an exploded perspective view showing a tape measure having a case capable of being opened and closed according to the present invention.
- [21] As shown in Fig. 2 and Fig. 3, the tape measure of the present invention includes a fixed member 100, a movement member 200, and protrusions 300.
- [22] Here, the fixed member 100 is formed to have an accommodating space of a pre-determined size therein when elements included in the fixed member 100 are combined. A bobbin 110 to wind a tape is included in the accommodating space. The fixed member 100 and the bobbin 110 of the present invention are preferably manufactured using synthetic resin which has high strength yet lightweight, and is not broken, such that a user does not feel its weight and easily perform his/her work.
- [23] A hook 170 is coupled to one end of the tape 150 so that the tape 150 is easily retracted/drawn out into/from a case, the hook 170 is always exposed to the outside of the case and fixed to a fixed part 180 formed outside the fixed member 100.
- [24] A slot 130 is formed under one side of the fixed member 100 for retracting and drawing the tape 150. The wound tape 150 is retracted/drawn out into/from the fixed member 100 by the bobbin 110, which is accomplished that a lever 190 included in the bobbin 110 is pulled in the orthogonal direction of the side surface of the case and is rotated thereto.
- [25] On the other hand, as shown in Fig. 3, a tape measure is completed by that the fixed

members 100 are coupled to one another such that the tape 150 is received therein, and then the bobbin 110 is coupled to the fixed member 100 in a state where a movement member 200 is inserted thereto.

[26] As shown in the drawing, the fixed member 100 is cut off by an arc of a pre-determined size so that a part of the tape 150 in the case is exposed. The cut part can be appropriately opened and closed by the movement member 200 rotatably coupled to the bobbin 110, as occasion demands.

[27] Namely, when the movement member 200 is slidably rotated any direction with respect to the fixed member 100, the wound tape 150 is exposed to the outside of the case, as shown in Fig. 4. Fig. 4 is a view showing a tape measure having a case capable of being opened and closed in a state where it is opened, according to the present invention.

[28] On the other hand, as shown in Fig.4, the fixed member 100 forms protrusions 300 on the outside thereof, and the movement member 200 forms protrusions 300 on the inside thereof, in which the protrusions 300 of the fixed member 100 and the movement member 200 are corresponded to each other and shaped as a plurality of saw teeth.

[29] Such protrusions 300 are symmetrically formed to the fixed member 100 and the movement member 200. Also, the protrusions 300 prevent the movement member 200 from being easily rotated to fixed member 100, when the movement member 200 is opened and closed by sliding against the fixed member 100.

[30] Namely, when the movement member 200 is rotated to the fixed member 100 as occasion demands, a user can feel speed of rotation as the protrusions 300 of the fixed member 100 and the movement member 200 are run against each other. On the other hand, the protrusions allow the movement member 200 to be fixed while the movement member 200 maintains its opening or closing operations.

[31] On the other hand, the case of the tape measure of the present invention is preferably made of synthetic resin having high strength characteristic and transparent characteristic, such that it cannot be easily broken down by shock from the outside.

[32] Therefore, the tape measure according to the present invention can obtain effects that alien substances stacked the inside of the case or pollutants adhered to the tape, which are produced in case of repeatedly use the tape measure for a long time, are easily removed by rotation of the movement member capable of being opened and closed and by washing the inside of the case, and also moisture remaining on the tape measure after washing is effectively removed from the inner of the case.

[33] As described above, since the tape measure according to the present invention is manufactured such that a case can be opened and closed, alien substances or pollutants can be easily removed from the tape or the inner of the case. Therefore, users can con-

veniently perform their measurement works using such a tape measure.

### **Industrial Applicability**

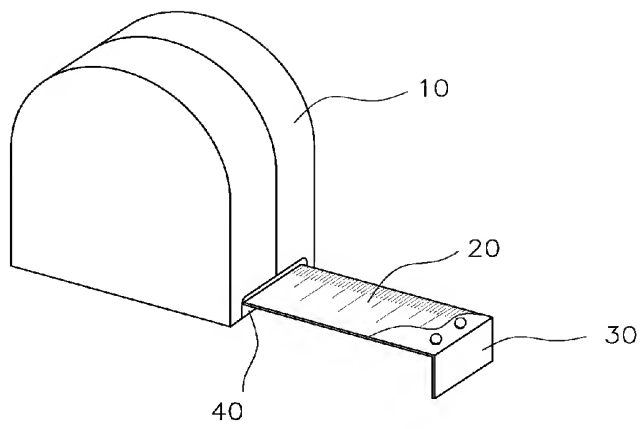
- [34] As described above, the present invention has advantages in that the maintenance and the mending are easily practiced because pollutants adhered to the tape are easily removed by washing and cleaning in a state where only the movement member is opened, instead the tape measure is not completely disassembled.
- [35] In addition to, the tape measure of the present invention can prevent malfunction because the alien substances and pollutants can be easily removed therefrom, thereby prolonging the life span of the tape measure.
- [36] Although the preferred embodiments of the present invention have been disclosed for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

## Claims

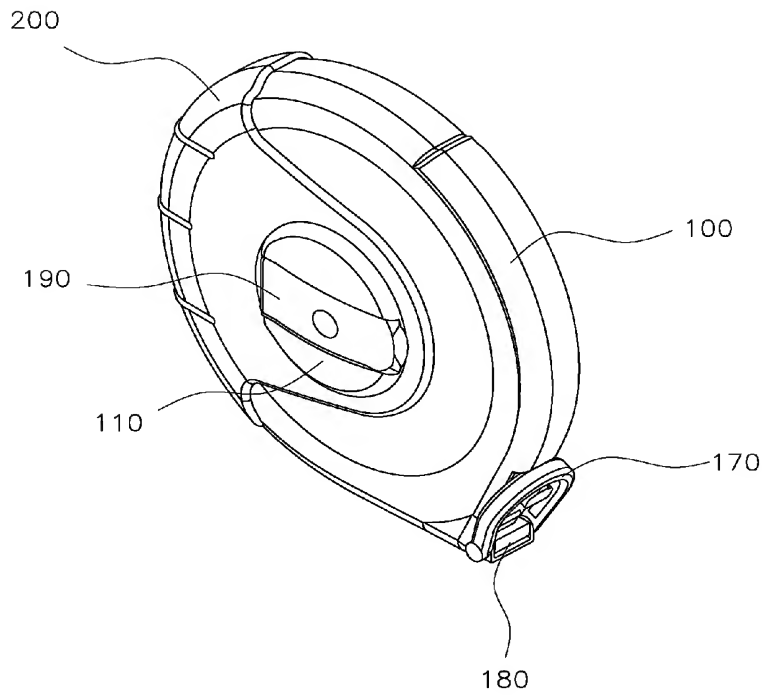
- [1] A tape measure having a case capable of being opened and closed, in which the case has an accommodating space of a predetermined size, a tape is spirally wound to a shift in the case, and the tape is drawn out of the case or received into the case by a lever formed outside the case, wherein the case comprising:
- A fixed member (100) one part of which is cut in the shape of an arc at a predetermined size;
- A movement member (200) performing a rotation to open and close the cutting part of the fixed member (100); and
- Protrusions (300) shaped as a plurality of saw teeth which are on an outer surface the fixed member (100) and on an inner surface of the movement member (200).



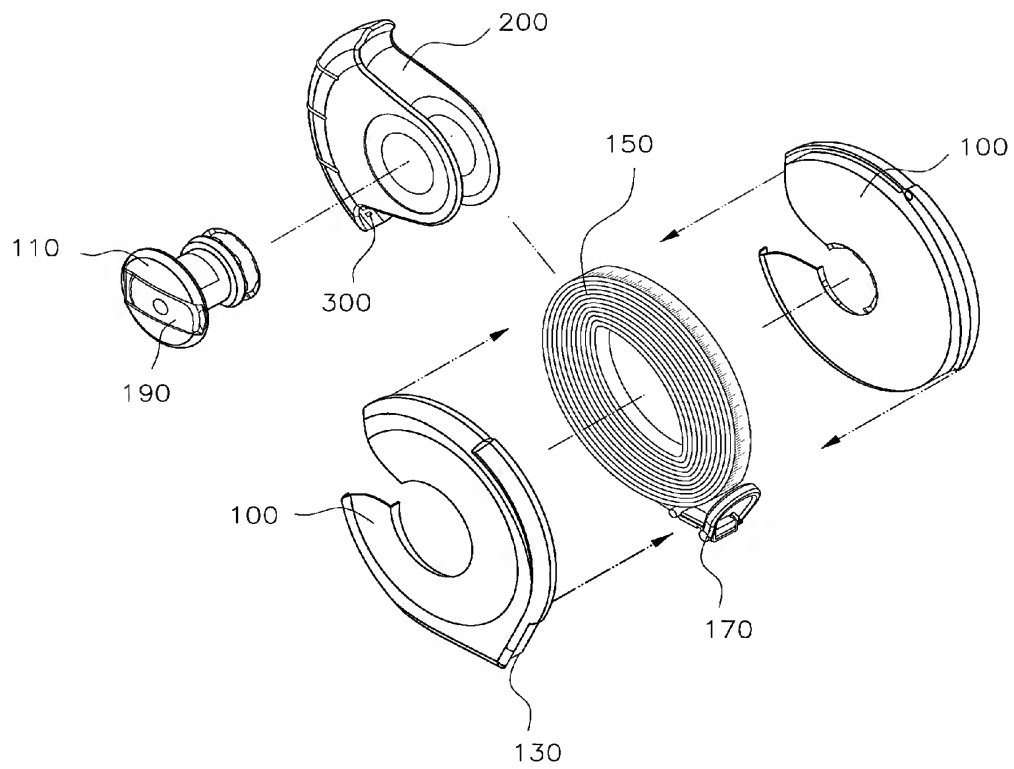
[Fig. 1]



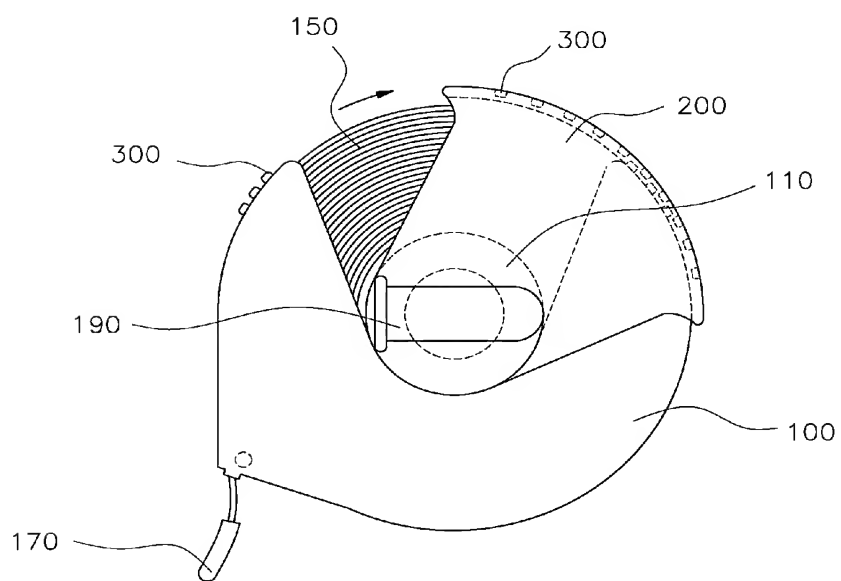
[Fig. 2]



[Fig. 3]



[Fig. 4]



## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR2005/000865

**A. CLASSIFICATION OF SUBJECT MATTER****IPC7 G01B 3/10**

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

G01B 3/00, G01B 3/10

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Patents and applications for inventions since 1975

Korean Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKIPASS "measuring tape"

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4,215,828 A (HILDERBRANDT & RATHBUN) 5 Aug. 1980 see the whole document	1.
A	US 4,164,334 A (HILDERBRANDT & RATHBUN) 14 Aug. 1979 see the whole document	1.
A	JP 05164502 A (SEKISUI JUSHI CO., LTD.) 29 Jun. 1993 see the abstract	1
A	JP 62284201 A (YOSHIMURA ZENSHIRO) 10 Dec. 1987 see the abstract	1

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"P" document published prior to the international filing date but later than the priority date claimed

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

07 JULY 2005 (07.07.2005)

Date of mailing of the international search report

**11 JULY 2005 (11.07.2005)**

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

PCT/KR2005/000865

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4,215,828 A	5. 8. 1980	NONE	
US 4,164,334 A	14. 8. 1979	AU 4338079 A1 CA 1105253 A1 DE 2901346 A1 FR 2414710 B3 GB 2012425 B2 JP 61052203	26.7.1979 21.7.1981 19.7.1979 30.10.1981 19.5.1982 08.4.1986
JP 05164502 A	29. 6. 1993	NONE	
JP 62284201 A	10.12. 1987	NONE	

**DERWENT-ACC-NO:** 2006-056907

**DERWENT-WEEK:** 200606

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**TITLE:** Tape measure has arc-shaped opening in fixed panels of case which is open/closed by rotary shutter

**INVENTOR:** KANG D H

**PATENT-ASSIGNEE:** KOMELON CO LTD[KOMEN]

**PRIORITY-DATA:** 2004KR-016510 (June 12, 2004)

**PATENT-FAMILY:**

<b>PUB-NO</b>	<b>PUB-DATE</b>	<b>LANGUAGE</b>
WO 2005121694 A1	December 22, 2005	EN

**DESIGNATED-STATES:** AE AG AL AM AT AU AZ BA BB BG BR  
BW BY BZ CA CH CN CO CR CU CZ DE  
DK DM DZ EC EE EG ES FI GB GD GE GH  
GM HR HU ID IL IN IS JP KE KG KP KZ LC  
LK LR LS LT LU LV MA MD MG MK MN  
MW MX MZ NA NI NO NZ OM PG PH PL  
PT R O RU SC SD SE SG SK SL SM SY TJ  
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PL PT RO SD SE SI SK SL SZ TR TZ UG  
ZM ZW

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**INT-CL-CURRENT:****TYPE**

CIPS

**IPC DATE**

G01B3/10 20060101

**ABSTRACTED-PUB-NO:** WO 2005121694 A1**BASIC-ABSTRACT:**

NOVELTY - The case is made of fixed panels (100) having an arc-shaped opening at one portion. A rotary shutter (200) opens/closes the opening area by its rotation. Sawtooth-shaped projections (300) are provided at the outer surface of fixed panels and inner surface of rotary shutter.

USE - For measuring length of articles at home or industrial sites.

ADVANTAGE - Enables to remove the pollutants adhering to tape easily by washing and cleaning without disassembling the entire tape measure, and increases life span.

DESCRIPTION OF DRAWING(S) - The drawing shows the tape measure with open/closable case.

fixed panel (100)

bobbin (110)

tape (150)

hook (170)

rotary shutter (200)

protrusions (300)

**CHOSEN-DRAWING:** Dwg.4/4

**TITLE-TERMS:** TAPE MEASURE ARC SHAPE OPEN FIX  
PANEL CASE CLOSE ROTATING SHUTTER

**DERWENT-CLASS:** S01 S02

**EPI-CODES:** S01-J01; S02-A01A;

**SECONDARY-ACC-NO:**

**Non-CPI Secondary Accession Numbers:** 2006-049061